AIC-320
Supplement 1

Eastern Regional Research Laboratory
Philadelphia 18, Pennsylvania

PUBLICATIONS AND PATENTS

OF THE

EASTERN REGIONAL RESEARCH LABORATORY

July - December 1951

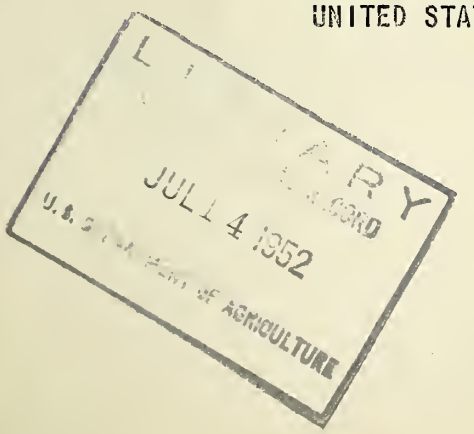
Single copies of available reprints may be obtained upon request. At the time this list was prepared, the following was not available:

No. 625

Photostat copies of publications usually can be purchased at nominal cost through the Bibliofilm Service of the Library of the U. S. Department of Agriculture, Washington 25, D. C.

Publications and patents of the Eastern Regional Research Laboratory issued before 1951 are listed in AIC-180 and Supplements 1 to 6.

BUREAU OF AGRICULTURAL AND INDUSTRIAL CHEMISTRY
AGRICULTURAL RESEARCH ADMINISTRATION
UNITED STATES DEPARTMENT OF AGRICULTURE



Publications

550 Ault, Waldo C.
ANIMAL FATS AND OILS AS INDUSTRIAL RAW MATERIALS. Chemurgic Digest, vol. 10, p. 4-6, September 1951.
Animal fats and oils are discussed from the viewpoint of their use as industrial raw materials. Changes appearing in the pattern of their use are described, and new uses offering considerable promise for increasing and broadening the utilization of fats and their derivatives are pointed out.

551 Ault, Waldo C., Riemenschneider, Roy W., and Morris, Steward G.
MEAT FATS OF BETTER QUALITY. Crops in Peace and War, Yearbook of Agriculture 1950-51, p. 671-676.
Discusses ways and means for production and processing of meat fats, particularly lard, having properties desired by American housewives.

552 Badgett, C. O.
TERNARY SYSTEM NICOTINE-WATER-KEROSENE. Industrial and Engineering Chemistry, vol 43, p. 2370-2372, October 1951.
The behavior of the ternary system nicotine-water-kerosene at various temperatures is described. Phase diagrams of the system at 64°, 67° and 70° C. are given. A partial space model plotted from the data shows the conditions under which three phases exist.

553 Beebe, C. W.
LEATHER MADE TO FIT YOUR NEEDS. Crops in Peace and War, Yearbook of Agriculture 1950-1951, p. 703-708.
Describes the proper tanning materials and processes to convert hides and skins of various origins into the many kinds of leather.

554 Beinhart, E. G.
PRODUCTION AND USE OF NICOTINE. Crops in Peace and War, Yearbook of Agriculture 1950-1951, p. 773-779.
The article gives the poundage of nicotine used against insects on 35 crops; describes the chemistry of nicotine and its production from tobacco stems; outlines the history of its use as an insecticide; and suggests *Nicotiana rustica* as a possible crop for nicotine.

555 Brice, B. A., and Halwer, M.
A DIFFERENTIAL REFRACTOMETER. Journal of the Optical Society of America. vol. 41, p. 1033-1037, December 1951.
The design and performance of a differential refractometer are described. The range is about 0.01 unit and the limiting sensitivity about 3×10^{-6} unit of refractive index difference; the accuracy is about 0.5 percent for determination of differences of refractive index. Data are given for the specific refractive increments of a number of proteins and polymers in various solvents. The instrument was designed primarily for determining refractive increment data needed in the light-scattering method of determining high molecular weights.

556. Clarke, Ira D., and Lowe, Clifton D.
ADVICE IN HIDES AND SKINS. Crops in Peace and War. Yearbook of Agriculture, 1950-1951, p. 697-702.
Many of the factors that determine skin quality and proper methods for handling hides and skins are discussed. Numerous uses for leather are listed.

557 Clarke, I. D., and Steiner, E. T.
RELATIVE QUALITY OF SHEEPSKIN LEATHERS TANNED WITH SICILIAN AND THREE AMERICAN SUMACS. Journal of the American Leather Chemists Association, vol. 46, p. 549-574, October 1951.
Reports results of numerous physical tests on leathers tanned with leaves of Sicilian sumac and three species of domestic sumac.

558 Cording, James, Jr., and Shaines, Alfred
PREPILOT PLANT METHOD FOR CRYSTALLIZING FATS AND GREASES IN DRUMS. Journal of the American Oil Chemists' Society, vol. 28, p. 344-346, August 1951.
A method is described for the batch fractional crystallization of wool grease or fatty acids from solvents at reduced temperature, in which the 55-gallon drum is employed as a blender and crystallizer. The method is illustrative of prepilot plant operations for producing quantities of new products for industrial evaluation.

559 Couch, James F.
RUTIN, A NEW DRUG FROM BUCKWHEAT. Crops in Peace and War. Yearbook of Agriculture 1950-1951, p. 742-745.
Rutin, a flavonol glycoside occurring in tobacco and other plants, was found to have medicinal value in alleviating hemorrhagic disorders. The buckwheat plant proved to be an economical commercial source of rutin. Methods were developed for its extraction from green or dried buckwheat, and for its refinement for pharmaceutical use. Some of its potential medical uses are reported.

560 Eskew, R. K.
THE ENGINEER AND HIS PILOT PLANT. Crops in Peace and War. Yearbook of Agriculture 1950-1951, p. 41-43.
The article discusses the functions of a pilot plant and explains how an engineer designs and operates it to determine the technical and economic feasibility of a new process. Examples are given of the development of new processes.

561 Eskew, Roderick K., and Edwards, Paul W.
FOOD AND FEED FROM WHITE POTATOES. Crops in Peace and War. Yearbook of Agriculture, 1950-1951, p. 177-183.
Two methods are described for making feed from ground potatoes. A steam tube drier is used in one, and a direct-fired rotary drier in the other. The advantages and disadvantages of pressing the ground potatoes before drying are discussed. Also described are methods for making an edible flour from raw ground potatoes by employing modifications of these processes and for making flour from cooked potatoes in which the conventional-type of rotary drum drier is used.

562 Eskew, Roderick K., Redfield, C. S., and Phillips, G. W. Macpherson
HIGH-DENSITY, FULL-FLAVOR APPLE JUICE CONCENTRATE. AIC-315, August 1951. (Processed.) Pt. I, The Canner, vol. 113. p. 12, 14, 16, October 20, 1951; Pt. II, The Canner, vol. 113, p. 12, 14, October 27, 1951.
Frozen juices are generally 4-fold, that is, they require 3 volumes of water t one volume of concentrate. This paper describes a process for making a 7 fold, high-density, concentrated apple juice that does not require frozen storage. Cost estimates show that an apple-processing plant producing 417 gallons of juice per hour can be converted to a concentrate - producing plant by a total capital investment of $220,000. In such a plant, freshly pressed apple juice can be processed into high-density, full-flavor concentrate at a total cost of about 8 cents per 6-ounce can, including costs of containers and all overhead costs but not the cost of fresh juice.

563 Eskew, R. K., Phillips, G. W. M., Homiller, R. P., Redfield, C. S., and Davis, R. A.
FROZEN CONCENTRATED APPLE JUICE. Industrial and Engineering Chemistry, vol. 43, p. 2397-2403, October 1951.
Unlike frozen orange juice concentrate, which contains aroma only to the extent that fresh "cut back" juice is added during manufacture, a frozen concentrated apple juice can be made containing all the aroma of the freshly made juice. The aroma is first rapidly stripped from the juice by a process developed several years ago at the Eastern Regional Research Laboratory. The stripped juice is concentrated under a moderate vacuum to about 45° Brix. The previously recovered aroma is then added, and the product is frozen in 6-ounce cans. The concentrate will be 44° Brix, and when diluted with three volumes of water will give a beverage almost indistinguishable from freshly made juice. Cost estimates have shown that an apple-processing plant producing 417 gallons of juice an hour could be converted to a frozen concentrate plant with a capital investment of about $207,000. The saving in freight and packaging costs over single strength juice would compensate for more than 82% of the "cost to make."

564 Fein, M. L.
MIXED ESTERS OF LACTIC AND FATTY ACIDS. Journal of the American Chemical Society, vol. 73, p. 5870, December 1951.
The pelargonates of 2-butoxyethyl, 2-(2-butoxyethoxy) ethyl, and 2-chloroethoxyethyl lactate and the laurates of ethyl and butyl lactyllactates were prepared, and their properties determined.

565 Filachione, E. M., Costello, E. J., and Fisher, C. H.
PREPARATION OF ESTERS BY REACTION OF AMMONIUM SALTS WITH ALCOHOLS. Journal of the American Chemical Society, vol. 75, p. 5265-5267, November 1951.
A modified esterification procedure by which ammonium salts of organic acids react with alcohols to produce esters and ammonia was investigated. This reaction seems to be generally suitable for the preparation of esters of organic acids. Similarly, reaction of amine salts with alcohols gives ester and amine. This method of esterification may be of interest in preparing esters from acid-sensitive alcohols and organic acids as well as in preparing esters of certain fermentation acids.

566 Fisher, C. H.
THE SUGAR WE GET FROM MILK. Crops in Peace and War. Yearbook of Agriculture 1950-1951, p. 322-328.
Discusses the manufacture, properties and uses of milk sugar or lactose. The greatest increase in production of lactose resulted from the discovery in 1944 that milk sugar is superior to other sugars as a raw material in making penicillin. Annual production of lactose in the United States increased from 7.6 million pounds in 1943 to 23 million pounds in 1946.

567 Gordon, William G.
UNIQUE PLACE OF THE MILK PROTEINS. Crops in Peace and War. Yearbook of Agriculture 1950-1951, p. 628-630.
The manufacture and chief industrial uses of casein are briefly reviewed. The status of the whey proteins as potential industrial protein is discussed.

568 Griffin, E. L., Jr., Willard, M. J., Jr., Sinnamon, H. I., Strolle, E. O., and Edwards, P. W.
PREPARATION OF ALLYLSUCROSE. Industrial and Engineering Chemistry, vol. 43, p. 2629-2634, November 1951.
A suitable method for producing allylsucrose monomer was worked out on a small pilotplant scale. The process and equipment used are described in detail. Obvious improvements that could be made in a production plant are recommended. A system for recovery of the allyl byproducts is suggested. A production cost estimate is included.

569 Hansen, J. E., McCarthy, M. G., and Dietz, T. J.
OSMOTIC PRESSURE MEASUREMENTS OF ETHYL ACRYLATE POLYMER. I. DEPENDENCE OF MOLECULAR WEIGHT ON CONVERSION. Journal of Polymer Science, vol. 7, p. 77-82, July 1951.
By employing the solution polymerization method, ethyl acrylate was readily polymerized, giving a product soluble in a number of organic solvents. By using benzene as the solvent, polymers of exceptionally high molecular weights were produced. The polymer samples were obtained by precipitation after the polymerization had proceeded for various periods of time. The slopes of the osmotic pressure curves were substantially constant for all the polymers. It is concluded that chain transfer to polymer during the polymerization process is insignificant and that the ethyl acrylate polymers do not contain any branched sites. It can be inferred from these data that the insolubility of ethyl polyacrylates frequently encountered is predominantly due to the extremely high molecular weights of the polymers.

570 Happich, W. F., Beebe, C. W., and Rogers, J. S.
ALUMINUM ACETATE IN THE DEVELOPMENT OF ALUM RETANNAGE. Journal of the American Leather Chemists Association, vol. 46, p. 659-669, December 1951.
Reports that a commercial basic aluminum acetate is more satisfactory for the alum retannage of vegetable-tanned leather than is aluminum sulfate made basic by an alkali and stabilized by a "masking" agent such as sodium acetate.

571 Herb, S. F., Witnauer, Lee P., and Riemenschneider, R. W.
ISOLATION OF EICOSAPENTAENOIC AND DOCOSAPENTAENOIC ACIDS FROMNATURAL SOURCES AS THEIR METHYL ESTERS BY ADSORPTION AND DISTILLATION TECHNIQUES. Journal of the American Oil Chemists' Society, vol. 28, p. 505-507, December 1951.
Methyl eicosapentaenoate and docosapentaenoate were isolated by adsorption and distillation techniques from the highly unsaturated esters of beef adrenal lipids. Specific extinction coefficients were determined under two conditions of alkali isomerization.

572 Heuser, G. F., Scott, M. L. (Cornell University, Ithaca, N. Y.), Eskew, Roderick K., and Edwards, Paul W. (ERRL)
STUDIES IN DUCK NUTRITION. III. THE FEEDING OF POTATOES TO DUCKS. Poultry Science, vol. 30, p. 672-678, September 1951.
Duck feeding tests are reported which showed that there was no effect on the live or dressed weight of White Pekin ducks at 9 weeks of age when 20 percent of potato meal was substituted for 20 percent of corn meal, 20 percent of wheat standard middlings, or 10 percent of corn meal plus 10 percent of wheat standard middlings. Thirty percent potato meal is probably the maximum amount that could be fed under these conditions, since there was some indication that when 30 percent of potato meal replaced 15 percent of corn meal plus 15 percent of wheat standard middlings, the weight was slightly reduced. Of 2000 ducklings started in the main experiment, 1,964 were alive at the end of 9 weeks, and 1,949 of these were marketable. Methods are described for producing the potato meal used in these experiments.

573 Hills, Claude H., and Willaman, J. J.
MANY ARE THE VALUES OF THE APPLE. Crops in Peace and War. Yearbook of Agriculture 1950-1951, p. 256-261.
Approximately half the annual apple crop of 120 million bushels is sold as fresh fruit. The remainder is utilized in the manufacture of a variety of processed products, the principal ones being sauce, butter, dried slices, vinegar, concentrate, juice, and canned and frozen slices for pies. Apple peels and cores are used for pectin or for livestock feed. In the home, apples are used in hundreds of recipes. No other American fruit approaches this combination of volume and diversity of uses.

574 Hoover, Sam R., Jasewicz, Lenore B., and Porges, Nandor
VITAMIN B_{12} IN ACTIVATED SEWAGE SLUDGE. Science, vol. 114, p. 213, August 24, 1951.
Reports that vitamin B_{12} was found in activated sludge from dairy waste and municipal sewage.

575 Hoover, Sam R., Pepinsky, Janet B., Jasewicz, Lenore, and Porges, Nandor.
AERATION AS A PARTIAL TREATMENT FOR DAIRY WASTES. Proceedings of Sixth Industrial Waste Conference, held at Purdue University, February 21-23, 1951. Purdue Engineering Bulletin, Extension Series No. 76, p. 313-319, November 1951.
A reduction in biochemical oxygen demand of about 75 percent and in chemical oxygen demand of 50-60 percent was obtained by aeration of milk wastes in a relatively simple daily fill-and-draw system. The possibility of applying this system in plants in which such a reduction in pollution would be sufficient is pointed out.

576 Kelley, Edward G.
MAKING USE OF VEGETABLE RESIDUES. Crops in Peace and War. Yearbook of Agriculture 1950-1951, p. 843-850.
Millions of tons of nonedible vegetable residues now wasted are rich in protein, chlorophyll, phytol, carotene, xanthophyll, sterols, and other valuable materials. This article tells how such wastes as pea and lima bean vines, and spinach and broccoli leaves can be utilized as poultry feed supplements or as sources of industrial chemicals.

577 Knight, H. B., Coleman, Joseph E., and Swern, Daniel
REACTIONS OF FATTY MATERIALS WITH OXYGEN. IX. ANALYTICAL STUDY OF THE AUTOXIDATION OF METHYL OLEATE. Journal of the American Oil Chemists' Society, vol. 28, p. 498-501, December 1951.
Methyl oleate, irradiated with ultraviolet, was autoxidized at 35°, 70° and 100° C. for 2000, 264 and 168 hours, respectively. Samples were withdrawn at intervals, and total oxygen introduced was determined by chemical analysis for peroxide, carbonyl, hydroxyl, oxirane, ester and carboxyl oxygen. Even with such a comparatively simple substrate as methyl oleate, the autoxidation reaction is exceedingly complex.

578 Krewson, Charles F., and Couch, James F.
BUCKWHEAT LEAF MEAL FAT. I. ITS PHYSICAL AND CHEMICAL CHARACTERISTICS AND THE CONSTITUENTS OF THE WATER-SOLUBLE AND UNSAPONIFIABLE FRACTIONS OF THE SAPONIFIED FAT. Journal of the American Oil Chemists' Society, vol. 28, p. 382-385, September 1951.
The leaf meal fat of the Japanese buckwheat plant was prepared, and its physical and chemical characteristics were determined. Spectrophotometric analysis of the fat indicates that in composition it is similar to the fat of the Tartary variety, now preferably used for manufacture of rutin. The large quantity of unsaponifiable matter is unusual. This fraction contains carotene, xanthophylls, phytol, beta-sitosterol, and an eicosanol. Also of interest is the presence in the fat of significant quantities of lecithin when isopropanol is used for extraction. The water-soluble acidic constituents of the saponified fat consist of the organic acids, formic, acetic, and lactic, and the inorganic acids, phosphoric, nitric, sulfuric, and hydrochloric. Ammonia was present in the alcohol distillate collected after saponification, and glycerol was identified in the water-soluble acid fraction. Quantitative values are given for formic and lactic acids and for ammonia.

579 Mayer, E. L., Nelson, R. H., and Robertson, Carl E. (Bureau of Entomology and Plant Quarantine), and J. J. Willaman (ERRL).
NICOTINE INSECTICIDES. PART VI - SEARCH FOR SYNERGISTS (CONTINUED). Bureau of Entomology and Plant Quarantine E-883, December 1951. (Processed.)
This paper presents the results of laboratory work on 14 adjuncts that appeared promising in preliminary screening tests, reported in Part V of this series (E-768). Bis(p-chlorophenyl) sulfide and pentaerythritol diisobutyral were among the best materials.

580 Mayer, E. L., and Nelson, R. H. (Bureau of Entomology and Plant Quarantine), and Woodward, C. F., and Willaman, J. J. (ERRL).
EFFECT OF THE RATIOS OF NICOTINE TO BIS(p-CHLOROPHENYL) SULFIDE AND BIS(p-CHLOROPHENYL) DISULFIDE ON SNYGERISM. Journal of Economic Entomology, vol. 44, p. 946-949, December 1951.
Bis-(p-chlorophenyl) sulfide strongly synergizes nicotine, both as sulfate and as bentonite, against the armyworm, bean aphid and diamondback moth. The most effective ratio is four parts of adjunct to one part of nicotine. The corresponding disulfide is less effective.

581 McMeekin, Thomas L., Peterson, Robert F., and Hoover, Sam R.
SOME FIBERS FROM THE PROTEINS. Crops in Peace and War. Yearbook of Agriculture 1950-1951, p. 466-468.
Properties of woven cloth such as strength, elasticity, and warmth are correlated with the molecular structure of the fiber content. Methods for making casein textile and bristle fibers are described, and their properties and uses are discussed.

582 Mellon, Edward F., and Hoover, Sam R.
HYGROSCOPICITY OF AMINO ACIDS AND ITS RELATIONSHIP TO THE VAPOR PHASE WATER ABSORPTION OF PROTEINS, Journal of the American Chemical Society, vol. 73, p. 3879-3882, August 1951.
The vapor phase water absorption of 17 amino acids and a number of their peptides and other derivatives was determined. These simple compounds show a complete range of absorption phenomena from nonhydroscopicity to deliquescence and some even show sorption hysteresis.

583 Morris, R. Henry, 3rd
THE STEP FROM LABORATORY TO INDUSTRY. Crops in Peace and War. Yearbook of Agriculture 1950-1951, p. 44-48.
A discussion of methods used to facilitate commercial utilization of the laboratory research accomplishments and obtain information on problems requiring solution. To illustrate this activity, the bland apple sirup and fruit essence recovery developments are described.

584 Naghski, J.
NO HONEY FROM TARTARY BUCKWHEAT. American Bee Journal, vol. 91, p. 513, December 1951.
Reports that tartary buckwheat blooms do not attract bees.

585 Naghski, J., Fenske, C. S., Jr., and Couch, J. F.
USE OF PAPER CHROMATOGRAPHY FOR THE QUANTITATIVE ESTIMATION OF QUERCETIN IN RUTIN. Journal of the American Pharmaceutical Association, Sci. Ed., vol. 40, p. 613-616, December 1951.
Quercetin was quantitatively separated from rutin by paper chromatography; ethyl acetate saturated with water was the solvent. The quercetin was determined spectrophotometrically after reacting with aluminum chloride.

586 Pepinsky, Janet B., Porges, Nandor, and Hoover, Sam R.
APPLICATION OF A RAPID CHEMICAL OXYGEN DEMAND TEST FOR DETERMINING ORGANIC POLLUTIONS. Proceedings of Sixth Industrial Waste Conference, held at Purdue University, February 21-23, 1951. Purdue Engineering Bulletin, Extension Series No. 76, p. 367-374, November 1951.
The extent of oxidation of a series of typical carbohydrates, proteins, and fatty compounds was determined by the rapid chemical oxidation procedure previously described. The effects of rate and extent of heating and of contaminating chlorides were measured. The general use of this rapid procedure is suggested for experimental studies and for measurements of pollution in plant and field studies of organic industrial wastes.

587 Phillips, G. W. Macpherson, Eskew, Roderick K., Claffey, Joseph B., Davis, Rudolph A., and Homiller, Richard P.
EXPERIMENTAL UNIT FOR RECOVERY OF VOLATILE FLAVORS. Industrial and Engineering Chemistry, vol. 43, p. 1672-1675, July 1951.
An improved apparatus for production of pure fruit "essences," that is, concentrated aqueous solutions of the volatile flavor constituents of fruit juices, is described, and diagrams and dimensions are given for a small pilot plant unit. With this apparatus, substantially complete recovery of the volatiles is achieved, as well as pasteurization, and with much less heat damage to the juice than occurs in conventional pasteurization. Heating and vaporization takes only 1 second, and total heat exposure time is only 2-1/2 seconds.

588 Port, William S., Hansen, John E., Jordan, E. F., Jr., Dietz, T. J., and Swern, Daniel
POLYMERIZABLE DERIVATIVES OF LONG-CHAIN FATTY ACIDS. IV. VINYL ESTERS. Journal of Polymer Science, vol. 7, p. 207-220, August-September 1951.
Contrary to some literature reports, the vinyl esters of saturated fatty acids polymerize readily and rapidly. Vinyl oleate, when present in excess of 5 percent, and oxygen exert marked retarding effects. Techniques are described for the free-radical initiated polymerization of the vinyl esters of caprylic, capric, lauric, myristic, palmitic and stearic acids in bulk, dispersion, solution, and emulsion. Some data are given for polymerization in the presence of chain-transfer agents, such as carbon tetrachloride, dodecylmercaptan and ethylbenzene. Conditions are reported for obtaining degrees of polymerization from about 2 (when chain-transfer agents are employed) to 10,000 (weight average). The weight average degree of polymerization increases markedly as the conversion increases, particularly above 80 percent. Even up to extremely high conversions, soluble polymers are obtained in most cases. Solubility characteristics, transition point data, molecular weights (osmometric and light-scattering), and isolation and purification techniques are also reported.

589 Port, William S., O'Brien, James W., Hansen, John E., and Swern, Daniel
VISCOSITY INDEX IMPROVERS FOR LUBRICATING OILS. POLYVINYL ESTERS OF LONG-CHAIN FATTY ACIDS. Industrial and Engineering Chemistry, vol. 43, p. 2105-2107, September 1951.
Polyvinyl palmitate, polyvinyl caprylate, and copolymers of vinyl palmitate with vinyl acetate are effective viscosity index improvers for lubricating oils. The improvement in viscosity index caused by the copolymers increases with increased vinyl acetate content.

590 Porter, W. L., Buch, M. L., and Willits, C. O.
MAPLE SIRUP. III. PRELIMINARY STUDY OF THE NONVOLATILE ACID FRACTION. Food Research, vol. 16, p. 338-341, July-August 1951.
A study of the nonvolatile acid fraction of maple sirup was made in investigating the possibility that the browning reaction is responsible for the characteristic maple flavor. Ion-exchange was employed to isolate the acid fraction, and paper chromatography was used to study its composition qualitatively. The presence of citric, malic, succinic and fumaric acids was shown. Glycolic acid or 1:2 dihydroxybutyric acid are probably present. The presence of tartaric and tricarballylic acids, reported in the literature, was not confirmed. In addition to the five acids identified, eight others were present.

591 Roe, Edward T., Stutzman, Jeanne M., and Swern, Daniel
FATTY ACID AMIDES. III. N-ALKENYL AND N,N-DIALKENYL AMIDES. Journal of the American Chemical Society, vol. 73, p. 3642-3643, August 1951.
Fifteen N-alkenyl and N,N-dialkenyl amides have been prepared in good yield from allylamine, diallylamine, methyallylamine and dimethyallylamine and caprylic, capric, lauric, myristic, stearic and oleic acids. Several of the amides, notably those of myristic and stearic acids, are excellent derivatives for the characterization of the unsaturated amines. Data are reported on the sulfation and polymerization of certain of these amides.

592 Rogers, Jerome S.
NATIVE SOURCES OF TANNING MATERIALS. Crops in Peace and War. Yearbook of Agriculture 1950-1951, p. 709-715.
This article shows how our inadequate supplies of vegetable tannins might be largely supplemented by producing canaigre and sumac as farm crops and utilizing tannins from oak, hemlock, fir, and spruce barks.

593 Scanlan, John T.
SOME GOODS FROM WOOL GREASE. Crops in Peace and War. Yearbook of Agriculture 1950-1951, p 863-868.
Several methods for recovery of wool grease are discussed. Uses for the recovered grease are outlined, and present knowledge regarding its chemical composition is reviewed. It is emphasized that additional information along composition lines is needed for substantially increased utilization.

594 Schwartz, J. H., and Talley, E. A.
ESTERS OF GLUCOSE AND LACTOSE. Journal of the American Chemical Society, vol. 73, p. 4490, September 1951.
Describes the properties of the caprylic, capric, and myristic esters of glucose and the butyric, caproic, caprylic, capric, lauric, myristic, palmitic and stearic esters of lactose. The glucose pentamyristate and lactose octabutyrate are crystalline compounds; the others are either sirups or amorphous solids.

595 Schwartz, J. H., and Talley, E. A.
SOME ESTERS OF GLUCOSE AND LACTOSE. AIC-310, September 1951. (Processed).
The lactose and glucose esters of the normal aliphatic acids containing an even number of carbon atoms, from acetic to stearic inclusive, and of propionic and benzoic acids, were prepared and characterized. Those not previously reported in the literature include glucose caprylate and caprate and lactose caproate, caprylate and caprate (obtained as sirups); lactose laurate, myristate, palmitate and stearate (obtained as solids); and α-D-glucose pentamyristate and lactose octabutyrate (obtained as pure, crystalline compounds). As plasticizers for Vinylite VYDR, glucose caproate, and butyrate gave the best results of the series.

596 Steyermark, A., Alber, H. K., Aluise, V. A., Huffman, E. W. D., Jolley, E. L., Kuck, J. A., Moran, J. J., and Willits, C. O. (ERRL), (Committee for the Standardization of Microchemical Apparatus, Division of Analytical Chemistry, American Chemical Society)
RECOMMENDED SPECIFICATIONS FOR MICROCHEMICAL APPARATUS. CARIUS METHOD. Analytical Chemistry, vol. 23, p. 1689, November 1951.
Reports the Committee's recommended specifications for the design and performance of a furnace and combustion tubes for use in the Carius procedure (halogens, sulfur, arsenic).

597 Swern, Daniel, Ault, Waldo C., and Stirton, A. J.
ANIMAL FATS AND OILS IN INDUSTRY. Crops in Peace and War. Yearbook of Agriculture 1950-1951, p. 538-543.
Utilization of inedible animal fats for industrial purposes is discussed. An outline of present commercial uses for these fats is presented, and suggestions are given for development of new products having greater possible outlets.

598 Talley, E. A., Hunter, Ann S., and Yanovsky, E.
ALLYL BUTYL ETHERS. Journal of the American Chemical Society, vol. 73, p. 3528, July 1951.
Describes the preparation and properties of the four allyl butyl ethers

599 Talley, E. A. (ERRL), and Wolff, I. A. (Northern Regional Research Laboratory)
CHEMICALS FROM STARCH AND SUGAR. Crops in Peace and War Yearbook of Agriculture 1950-1951, p. 136-141.
The preparation and utilization of products derived from starches and sugars as chemical raw materials are discussed. Among the products are starch esters, ethers, and alkoxides; starch pyrolysis and hydrogenolysis products; glycosides; sugar alcohols, and sugar acids; sugar ethers and esters, and compounds related to ascorbic acid. Examples are given of the properties of the various materials in relation to specific applications

600 Treadway, R. H., and Cordon, T. C.
THE CHEMICALS WE GET FROM POTATOES. Crops in Peace and War. Yearbook of Agriculture 1950-1951, p. 190-194.
Methods of manufacturing ethyl and butyl alcohols by fermentation of potatoes are described. Statistics are given on the production of these two alcohols from potatoes. Potential fermentation products are discussed; lactic acid and butylene glycol are cited as examples of chemicals recently prepared from potatoes in laboratory studies.

601 Treadway, R. H., and Howerton, W. W.
PRODUCTION OF WHITE-POTATO STARCH. Crops in Peace and War. Yearbook of Agriculture 1950-1951, p. 168-172.
The historical development and present status of the American potato starch industry are summarized. Manufacturing operations in a starch factory and the disposal of factory wastes are discussed. The work of the Eastern Regional Research Laboratory in aiding the potato starch industry is outlined.

602 Walton, George P.
SOURCES AND VALUES OF HONEY. Crops in Peace and War. Yearbook of Agriculture 1950-1951, p. 308-315.
The article discusses the principal floral types of honey from the viewpoints of flavor, composition, and economic importance, and shows the disposition of the annual average crop of about 225 million pounds. Also discussed are the importance and significance of the various components of honey, the physical characteristics, and methods of commercial processing. Important uses of honey, both in food and other fields are mentioned.

603 Weil, L., and Buchert, A. R.
PHOTOOXIDATION OF CRYSTALLINE β-LACTOGLOBULIN IN THE PRESENCE OF METHYLENE BLUE. Archives of Biochemistry and Biophysics, vol. 34, p. 1-15, November 1951.
The photooxidation of crystalline beta-lactoglobulin in the presence of methylene blue was studied. Changes in amino acid composition and physical properties of the protein during the oxidation were investigated.

604 Weil, L., Gordon, W. G., and Buchert, A. R.
PHOTOOXIDATION OF AMINO ACIDS IN THE PRESENCE OF METHYLENE BLUE. Archives of Biochemistry and Biophysics, vol. 33, p. 90-109, August 1951.
The photochemical action of methylene blue on various amino acids was studied. A possible reaction mechanism of this photooxidation is advanced.

605 White, Jonathan W., Jr., and Maher, Jeanne
DETECTION OF INCIPIENT GRANULATION IN EXTRACTED HONEY. American Bee Journal, vol. 91, p. 376-377, September 1951.
A simple Polaroid device is described by which the honey producer and packer can easily detect small crystals of dextrose in extracted honey, and thus take appropriate measures for their destruction. Photographs and a drawing are included.

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